
PURE
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The
Complete Guide To
Basement Waterproofing and Mold

The purpose of this book is to empower you, the homeowner, with the education that you need to decide how you should move forward with your basement.

By telling you how your basement was constructed and how the water table surrounds and affects your house, we are hoping to paint a clear picture of how water can get in.

Once you understand how the water gets in, you'll understand the best way to keep it out.

To help you make sense of it all, we have put together this collection of articles that answer the BIG questions that most people have.

Here's to a dry and healthy basement

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Chapter One

Where does all the rainwater go?

First we should talk about surface water which is water that comes from rainfall. Surface water is much different than ground water and much different from a high-water table. Surface water comes from above, while ground water and the water table come from beneath your home.

Rain can produce a lot of water in a short period of time. Some of the rain lands on your property, the rest lands on your roof. Rainstorms produce vast quantities of water on roofs. An average-sized ranch home that has a roof area close to 2,400 square feet will generate nearly 1,500 gallons of water during a storm that dumps 1-inch of rain. That's a tremendous amount of water to concentrate around the foundation of your home.

Your gutter and downspout drainage system must be able to move the rainwater away from your house. If the water stays next to your foundation, it can result in a wet basement. This water can cause leakage in basements and crawl spaces.

Typical roof gutter

Water is erosive and can cause erosion of soil, concrete, wood sills, etc. Left unchecked it can carve a path through the earth to your foundation. Once that occurs, it clears the way for more water to get to the foundation quickly in the future. That erosion paves the way for water intrusion into the basement and the costly repairs and cleanup costs associated with a flooded basement.

Gutters and downspouts are designed to collect and remove water from the roof. Granted, gutters aren't exactly glamorous, but they handle a critical task: routing the runoff from a very large surface—your roof—to proper drainage away from the house. Houses equipped with gutters and downspouts concentrate this water in just a few locations where the downspouts terminate near the ground or are discharged out via an underground pipe.

Some people think that a splash block is all that is needed at the bottom of the leader. Splash blocks, or diverters as some people call them, are of little benefit. The only thing they do is absorb some of the downward energy of the water as it rushes down the downspout. Without the splash blocks, you'd have a large hole next to your home where soil used to be.

The first rule about dealing with water and your foundation is:

Keep as much water away from the foundation as possible.

When your home was built the first thing that happened was an excavation so the foundation could be built. That hole in the ground is bigger than the foundation by a few feet on all sides. Next your foundation was constructed, the tar was put on the concrete and then the hole was filled back up. That dirt, which is called BACKFILL, is loose and not compacted. The rest of the soil around the excavation has been undisturbed forever therefore it is compacted. So the backfilled soil around the foundation will always be looser and absorb more water than the undisturbed soil around it.

When the excavation occurs it creates a hole in the soil. The groundwater rushes to fill this hole. This causes what is known as the CLAY BOWL EFFECT around your house. The water fills up that backfilled area (the clay bowl) around the perimeter quickly because the soil is not as compacted. All of that water lies right up against your foundation which is what you don't want. Your downspouts should terminate with the water from the roof be- ing a minimum of 10 feet from your foundation to keep it out of the CLAY BOWL area.

Chapter Two

How a basement is built

An excavation is done to an average of eight feet. This depth is well below the frost line of 36" here in New Jersey. The depth below the frost line is where water NEVER freezes. Next a concrete footing is poured, typically 16" wide for an 8" wall. The walls are constructed centered on the footing. A 4" slab floor is then poured. The outer edge of the floor rests upon the footing.

During construction a type of waterproofing is usually applied to the foundation before the backfill is done. A tar like substance is applied to the exterior of the concrete walls, both poured and block alike. Tar is a very good waterproofing substance and has been used forever. The tar coating is similar in substance and life to roofing shingles. They don't last forever and neither does the tar on the foundation.

Once the tar is gone the foundation is no longer sealed. The porous concrete is laid bare. Water creeping through underground soil crevices creates hydrostatic pressure up from beneath the floors and against the sides of your home. Hydrostatic pressure occurs when a body of water surrounds something that does not float. When this water pressure forms around the foundation the non-sealed concrete starts to absorb the water. This is called capillary action.

Let's do a visual; we have a sponge cube that is 12"x12"x12". We take the cube and prop it up on 1" blocks and place it under the kitchen faucet. We then let one drop of water drip on the center of the sponge every second. The sponge gets saturated right down the center until the center of the sponge is wet all the way down to the bottom.

From this point forward for every drop of water that hits the top of the sponge, a corresponding drop of water will come out of the bottom of the bottom of the sponge. The water no longer has to pause in its journey to be absorbed by the concrete because absorption has already occurred. Now the water just passes right through the saturated concrete. This is called capillary suction. The water comes right into the concrete. The concrete is porous, it absorbs and retains water.

If this water damage is left untreated, repairs for this type of damage can be quite overwhelming. The earlier these abnormalities in your home are addressed, the better off you

will be. The best way to prevent negative consequences from occurring is to ensure that you are aware of the measures you can take to prevent them from happening in your home.

Chapter Three

What is a basement and why is it floating?

Whether you have moved into an existing home with a basement or you are in the process of building a brand-new home, understanding how your basement was built can be helpful.

The basement in its early history was little more than a cellar where the cold storage took place. Root cellars are for keeping food supplies at a low temperature and steady humidity. They keep food from freezing during the winter and keep food cool during the summer months to prevent spoilage.

When boilers replaced fireplaces for home heating, the basement was where the coal bin and heating plant for the home was located. After World War II came the development of large, mid-priced suburban homes and basements became easier to build. Big excavation machines like backhoes and front end loaders made the job easier than the manpower required to excavate by hand.

The basement has become commonplace in construction today as a space in its own right. Typically it is a large, concrete-floored space, accessed by indoor stairs, with exposed columns and beams along the walls and ceilings.

A basement provides additional living space and storage for your home. It can be used in almost exactly the same manner as an additional above-ground floor of a house. However, basements are considered standard in many places with temperate climates.

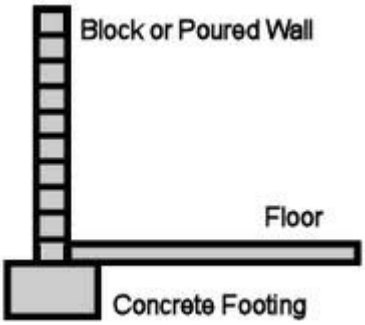
There are a number of different ways that a basement might be constructed, and the method used will depend on the soil conditions and the standard construction of the area. A house with a basement starts with a hole about 8 feet deep. The basement in then constructed in three parts:

1. The footings are formed and poured. The typical footing in a ranch style home is 16” Wide by 14” Deep.
2. The 8” thick wall (either poured solid concrete or hollow concrete blocks) is then centered on the footings and built up to about 7’ 3” in height.

TYPICAL FOUNDATION CONSTRUCTION

3. The slab floor is usually 4” and is poured concrete.

If you live in an area with clay soil, basement foundations can become unstable as the condition of the clay fluctuates. As rainwater passes through the clay it expands. When the clay dries, it shrinks. For this reason, many contractors will install floating basement walls.



Floating basement floors do not actually connect to the walls; instead there is a gap where the floor and wall come together. **Many homeowners don't even know they have a floating basement and think that the space between the walls and floor is a French Drain.** A floating basement is not a drainage system, but rather a way to prevent the basement floor from cracking. The floating floor allows some breathing room for the ground to rise and swell without causing structural damage to the home.

The type of basement you have will depend on the soil conditions under your home and the preferences of the builder who constructed the house. It is good to understand the type of basement construction your home might have in case you ever have problems with your basement structure. A properly constructed basement will provide a firm foundation for your home for years to come.

Chapter Four

Why Does My Basement Leak?

First we should know how the house was built. Here in New Jersey most of the homes built from the 1940's on have a concrete foundation. Concrete is porous, it can absorb and retain water.

There are two main types of concrete foundations, Concrete Block or poured concrete.

1. Concrete block is also known as CMU or Concrete Masonry Unit. Some of us still call them Cinder Blocks, although they are not made from ash or cinder that often. These hollow blocks are typically 8" H x16"W x 8"D

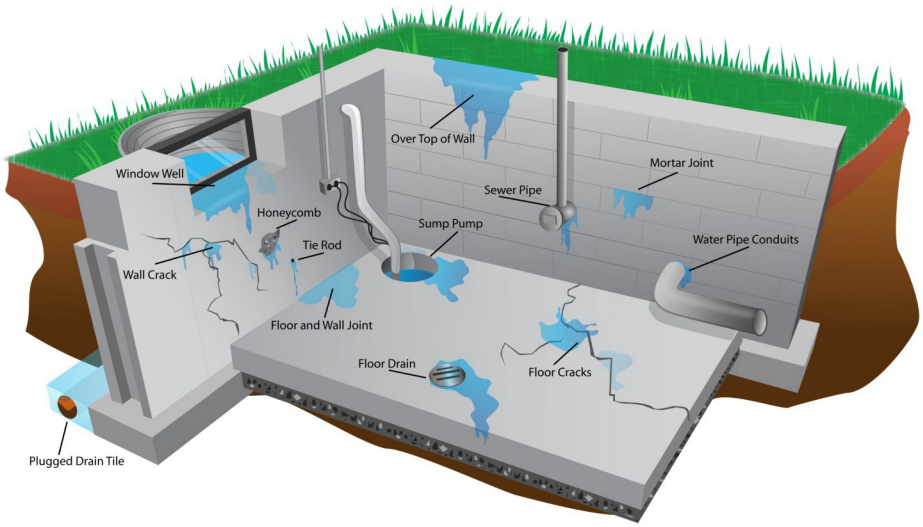
2. Poured Concrete walls are usually 8" thick of solid concrete.

These walls are sealed with a tar like substance before the backfill occurs. That is your house's waterproofing. Most technically it is called damp-proofing. The tar is not permanent. It does not last forever. It is very similar to your roofing shingles. The tar has a 30-40 year life, and that's it.

Snow melts, rain falls and much of this moisture is pulled deeper into the frost line by gravity. The frost line is the depth in the ground in which the water NEVER freezes. Because this seepage is constantly moving beneath the frost line, you should expect water related problems year round. Times of extreme seepage occur usually in early spring and late fall. Of course a catastrophic event like a Nor'easter or a hurricane can happen at any time.

As gravity pulls the ground water deeper into the soil, it moves sideways following the slope of the surrounding areas. Topsoil will absorb some of the water but as rain continues to fall the absorbent layers become even more saturated and the water begins to follow the underground 'paths of least resistance' called Capillary Veins. Think of these Capillary Veins as underground streams of seeping water. As this water approaches your home it collects in the loosely packed soil that is pressing against your foundation.

In the meantime, the undisturbed soil about 2 to 5 feet from your home is much more solid and is unable to percolate the ground water away fast enough causing it to rise around the foundation of your home.



HOW WATER PENETRATES YOUR FOUNDATION

As the water level continues to raise the weight of the water causes pressure to build (Hydrostatic Pressure). This pressure forces water into settlement cracks in your home's foundation and sooner or later, into your basement.

What are the stages of water penetration?

- **Stage 1:** Dampness and wet spots appear, mold and mildew begins to form, and efflorescence (White crystal like powder) appears discoloration of foundation and blistering paint.
- **Stage 2:** Walls wet to the touch, small amounts of water and a combination of signs from stage 1.

- **Stage 3:** Water on your basement floor and a combination of signs from stages 1 and 2.
- **Stage 4:** Heavy water in your basement and a combination of stages 1, 2 and 3.

If water is penetrating the foundation and entering the basement, these are times when a waterproofing company is needed.

Chapter Five

A High Water Table and your Basement

Okay, here comes some geology. It is important to understand how the water rises around your basement and can cause basement flooding. High water tables are a nuisance that many homeowners must face. The water table lies underground and is the level at which the soil and gravel are completely saturated with water. There is often some seasonal change in the water table, due to rain or drought.

A high water table is especially common in areas where the soil is not well drained due to high levels of clay. Most people know that the water table has something to do with ground water. The word table provides an image of a flat surface, like the surface of a tabletop. It may be visualized as the 'surface' of the subsurface materials (sediment, gravel and clay) that are saturated with groundwater in a given geographical area.

There is also a general understanding that in times of drought, water table levels may drop. Understanding sub-surface water can help explain why water tables may rise and fall. Ground water is sub-surface water, but not all sub-surface water is ground water. The upper surface of ground water is the water table.

Below this surface, all the spaces and cracks (pore spaces) in clay and rocks are completely filled (saturated) with water. In the top layers of soil pore spaces may not be completely filled with water. These layers may contain water, some air, and some may only be partly filled with water. This is known as the unsaturated zone or the zone of aeration.

After heavy rainfall this zone becomes saturated, while during a long dry spell or drought, it becomes almost dry. Rainwater infiltrates downwards through the unsaturated zone. This infiltrating water is known as soil water when it is still shallow enough to be used by plants. With further infiltration however, excess water will eventually reach the water table. As the rainfall continues, the water table rises.

Water tables can become elevated when they receive more water than they drain off. This can be from unusually high amounts of rain, or excess water from higher elevations. High water tables are often above the level of basement floors or crawl spaces. This almost always causes flooding in these areas.

The level of the water table varies greatly due to amount of rainfall, time of the year and type of soil that surface water drains through. The water table is generally higher in areas with high density soil related to clay content. The denser the soil is, the slower the move-

ment of the water (percolation) of the water through the soil occurs. The rate at which the high water table descends is related to the percolation rate, which is related to soil density.

This high density soil follows the grade of the terrain. Therefore the water table can be just as high at the top of the hill as it is at the bottom of the same hill. The flow of surface water is based on the slope of the land but not the water table. The water table conforms to the contour of the land above.

The next time you see a puddle in the yard after a 2 day soaking rain, remember the water table. It is very likely that the puddle is the top of the water table that has temporarily exceeded the grade of the yard. When the water table rises up to the level of your basement there is nothing you can do to stop it. The water table typically rises over a very wide area, not just around your house. The water table is part of the earth and re-grading your flower beds will not alter it.

Chapter Six

10 Steps to Check Your Basement for Water Damage

Unexpected water in your basement can damage walls and floors, destroy carpeting, ruin furniture and lead to mold. Water damage can really wreak havoc in your home and perhaps the most upsetting of all: water downstairs can ruin irreplaceable items like photo albums, antiques, and family heirlooms. The key is to get the water before it gets you. A small leak might not seem like a very big problem but you might end up with extensive flooding and water damage if you allow it to continue over a long period of time.

Once the problem has become extensive you might find that it takes a lot of time and money in order to resolve the problem. First you want to make sure that leaking is not coming from *inside* the basement. Look at the plumbing, HVAC, hot water heater, washer/dryer, dehumidifier to see if there is any leaking in these areas. Once those sources have been eliminated, we can check for water intrusion from the outside.

Let's look for some of the signs that indicate leakage. They can assist in indicating what type of problem you are having and can also help in locating the source of leakage.

1. **Peeling Paint**...Paint peeling from basement walls can be caused by water evaporating behind it.

2. **Staining on Carpets** …Can indicate past leakage. This is true when locations are near foundation walls.

3. **Warped or Damaged Paneling**…Can indicate past water absorption, due to leakage.

4. **Insects and Bugs**…Look for evidence of small insects along the baseboards, behind sofas, in corners, etc. Some types of insects gravitate towards areas of moisture.

5. **Wet spots on walls**…This is a result of capillary action, the water absorbing into the wall from outside.

6. **Dry rot**…Wood that has previously been dried lumber, such as your basement stairs, that is decaying. Usually indicated by a dark stained look or wood that is splitting apart.

7. **Rust Stains**...Sometimes seen on concrete floors and carpet, usually due to rusted metal feet on furniture. Rust on baseboards, electrical boxes, etc., all indicate evidence of past moisture.

8. **Efflorescence...**A white mineral deposit which is visible on masonry surfaces is the result of water passing through the wall.

9. **Mold/Mildew**…Usually located on or near, an area that has seen prolonged moisture giving the mold a chance to grow. This is often associated with an unpleasant odor.

10. **Dampness/Staining around Floor Cracks**…Can indicate that water is forcing itself up through the cracks, due to pressure, water table, etc.

Check carefully for the appearance of any of these 10 major danger signs that suggest your basement is being undermined by water. Basements can also become riddled with moisture if they are not properly ventilated. In order to ensure that the area is properly ventilated you will need to install a ventilation system such as the E-Z Breathe Ventilation System.

Water damage can cause you many problems in your home. Not only is this an inconvenience but it can also have negative effects on your health. Basements are dark and, when you add that to the damp, they tend to develop mold which can cause serious problems for you or your family. The best way to prevent negative consequences from occurring is to ensure that you are aware of the measures you can take to prevent them from happening in your home. For your peace of mind, call Pure Service Pro.

Chapter Seven

Why Should I fix my Leaky Basement?

Some people that have a small leak in the basement tend to downplay it, at least in their own minds. *"It only leaked because of Hurricane Irene"* is the reason most often given recently. I've said it before and I'll say it again, either your basement is sealed tight and will not leak or it's not sealed and does leak. It is a very simple fact. It leaks or it doesn't.

Now here is another fact, once your basement leaks, you are going to have to pay for it to be fixed. This can happen in one of a few ways:

- Your Home's Resale Value: The resale value of your home could be adversely affected. Buyers expect a dry basement with a strong foundation and no cracks. The market can sometimes penalize you, the seller, up to 10% of the resale price of your home. Actually, any signs that there was once water in your basement such as water marks on the walls, musty odors and mildew will cause great concern to a potential buyer of your home. When real estate markets are tight, this damage will turn buyers off and cause them to either look elsewhere or seek a significant drop in price.

- Real Estate Laws: Real estate laws have become very strict regarding basements. You, the seller, could be held responsible for any undisclosed defects for long periods of time after the sale. You can put your house up for sale so long as all water defects are disclosed. However, the market will penalize you if you take this course in the form of lower offers for your home.

- Delayed Sale: In the real estate industry, especially today, a delayed sale usually is a lost sale. Don't wait until the last minute to address your leaky basement. That could lead right into the next issue and cost you more money.

- The buyer chooses a contractor: The house is in Attorney review and you think everything is fine until the buyer's Home Inspector finds evidence of water in the basement. Now the buyer finds three high priced contractors to fix the basement and lets you choose.

Because of the water problem there may very well be an issue with mold. Unpleasant odors in your basement and throughout your house are in direct association with damp basements. Mold spores and bacteria cultures that form on wet and rotting surfaces can expose serious health problems to you and your family. The elderly, the allergic and those with weak immune systems are vulnerable to a variety of illnesses due to mold spores and bacteria caused by a damp basement.

If the home inspector finds signs of mold in your basement you might end up having to pay a Mold Remediation company to come to your home. The costs associated with this can range from a testing costing in the hundreds to a full-blown mold remediation in the thousands of dollars. Once the basement has leaked it will leak again, it is just a matter of when. You are going to have to pay for the leak at the time of the sale anyway.

If you sell the house in ten years, do you think it will cost less to fix in 2034 than it does today? Probably not less than today's pricing, but more likely quite a bit more. So if you are going to pay for it anyway, doesn't it make more sense to fix it now at today's prices and have a dry basement for the next 10 years until you do sell? Who knows when the next Nor'easter or Hurricane is going to occur?

Chapter Eight

A healthy home needs a healthy basement

A healthy home needs a healthy basement. You can't have one without the other. The main house is above ground and has plenty of air circulation from the windows and doors being opened and closed each day. Also, because most of the living takes place in the main living areas, the main house is probably cleaned more often.

The basement is subterranean, below ground where the bugs and insects and creepy crawly things live. Because the basement is underground it has a different environment than the rest of the house.

There are a lot of things that are in the basement that are not conducive to having a healthy house. Your plumbing and sanitary system is in the basement. Your heating system and hot water heater are in the basement. These things produce a lot of moisture. Your dehumidifier only works in the warmer months because of relative humidity. January in New Jersey is typically not a warmer month so the dehumidifier is not working. What do you do about the dampness and moisture into your basement in the non-Summer months? When you have moisture in the basement you get other things in the basement associated with that moisture, bad smells, mold, mildew, insects of all kinds, dry rot, rust and rodents. Bad smells are nature's way of telling us something's wrong.

If your basement smells bad something is wrong with the basement and you need to have it checked out by a professional. Next we will talk about mold. Everybody knows mold is not good for you. There is need to panic if you see mold.

Mold is part of nature and mold spores are everywhere. When mold spores land on something that's damp with an organic matter it can start to grow. Call Pure Service Pro for a mold test.

Third we come to mildew. Mildew is the smell you smell when you have mold. Insects like dark moist places. We're not just talking about spiders and ants but also wood destroying insects like termites and carpenter ants. I really can't think of anything good to say about having insects in your home especially the ones that can eat your home.

Dry rot is a term associated with wood rot. The way it sounds is somewhat of misleading because you need moisture to have dry rot. The term dry rot refers to wood that has already been dried such as lumber. When this dried wood, such as your basement stairs gets wet, a certain fungi can grow in the wood.

This fungus grows roots which go into the wood and started breaking apart. Dry rot is bad.

Rust is also called iron oxide and happens over time when metal gets damp or wet. Your major appliances are located in the basement and are subject to rusting when moisture is present. Just think for a moment about how much it would cost to replace your furnace, hot water heater, HVAC, or washer and dryer. I am not trying to tell you that moisture is going to instantly kill your appliances. Appliances that are rusted will typically have a shorter life than those which are not rusty.

Okay we saved the best for last, rodents. Mice and rats just say it all. Unless your kids have a hamster cage we really don't want rodents in the house. It is important that you understand your basement has to be healthy in order for your home to be healthy. Bad smells, mold, mildew and insects can easily come upstairs. Moisture doesn't mean that you need basement waterproofing or a sump pump. It just means you need to call a professional for a free inspection.

Chapter Nine

What is a French drain, really?

A French drain is a trench covered with gravel or rock that redirects surface and groundwater away from an area. This is an outside drainage system. The earliest forms of French drains were simple ditches, pitched from a high area to a lower one and filled with gravel. These were described and popularized by Henry French (1813-1885) a lawyer and Assistant US Treasury Secretary from Concord, Massachusetts in his book Farm Drainage.

A French drain can have perforated hollow pipes along the bottom to quickly vent water that seeps down through the upper gravel or rock. French drains are common drainage systems, primarily used to prevent ground and surface water from penetrating or damaging building foundations. French drains are also used behind retaining walls to relieve ground water pressure French drains *aka* Perimeter Drains are often installed around a home foundation during the initial construction of the structure. They are buried around the foundation wall on the external side of the foundation. In most homes, an external

French drain or drain tile is installed around the foundation walls before the foundation soil is backfilled.

Then we come to the inside drainage system. Installed underneath the basement floor on the inside perimeter of the basement and while commonly referred to as a French Drain is what Pure Service Pro calls a Turbo Jet Pro Pressure Relief System. This is because it relieves the hydrostatic pressure (water pressure) from the footing area.

The outside system is based on grading and gravity; the inside system uses a mechanical pump (sump pump) to remove water from the basement. The water enters the sump pit from the perimeter drains of a basement waterproofing system, and then the sump pump pumps it up and out of the basement.

Installing a French drain around the inside perimeter is most commonly done after the house has been built. Most often, this is done in response to a wet basement or right be- fore performing a basement finishing.

To install this kind of drain:

1. The inside perimeter of the floor is cut approximately one foot from the wall. A trench is excavated and pitched.

2. Where possible, the lowest course of block is tapped and bled (weep holes) in order to drain the walls.

3. Fully slotted, non-biodegradable, polyethylene drainage pipe to deliver the water to the sump is installed.

4. To discharge the water, we will install a 4,000 GPH submersible pump* in a covered polyethylene liner.

5. Polydrain wallboard is installed over the bottom of the wall and over the entire trench in the basement.

6. The wallboard and drainage pipe are cov- ered with gravel.

7. The basement floor is re-cemented to its original level.

*Note: Basement perimeter of $\leq$ 124' = 1 sump pump;
125'-249'= 2 sump pumps.

The Turbo Jet Pro Pressure Relief System (French drain) is usually installed in 1 day by Pure Service Pro experienced staff. The system is maintenance free once installed. An interior French drain is much less likely to clog than an exterior, partially due to the fact that it is not sitting underneath several feet of soil. Over time soil can clog an exterior French drain.

The Turbo Jet Pro Pressure Relief System carries a transferrable lifetime Guaran- tee. There is no tax of any kind as this is a Capital Improvement to the home.

If you see any signs of water in the basement you should call Pure Service Pro.

Chapter Ten

French Drain versus Sump Pump

There is a lot of information available concerning the waterproofing of a basement. All sorts of things that **ultimately don't work** are recommended from "waterproofing" paint to digging up the outside perimeter of the home to re-tar the foundation. But more often it comes down to this:

FRENCH DRAIN vs. SUMP PUMP.

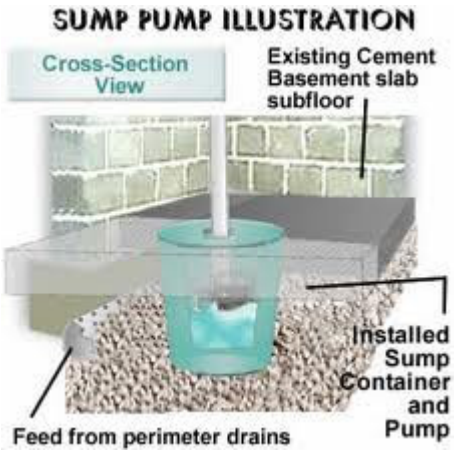
Before we can answer that question, we need to fully understand what a French Drain is and what a sump pump is. What is commonly called a French Drain is what we call a Turbo Jet Pro Pressure Relief System. This is because it relieves the hydrostatic pressure (water pressure) from the footing area. The system is designed to prevent water from flooding your basement. It is installed inside the basement, below the floor, around the perimeter.

This French Drain controls the water, delivers it to the sump pump(s), and discharges it out of the house. This system comes with a lifetime guarantee that your basement floor will not have any water on it.

The Turbo Jet Pro Pressure Relief System (French Drains) is usually installed in 1 day by Pure Service Pro's experienced staff. Then we come to the sump pump. A sump is a low space that collects any often- undesirable liquids such as water. A sump pump is a pump used to remove water that has accumulated in water collecting sump pit, commonly found in the basement of homes.

In a boat, this low place to collect the liquids is called the bilge, and the pump used is a bilge pump. You get the idea; it's a pump that stays in the sump so it's called a sump pump.

The sump pump will take whatever water is right there and pump it out. The sump pump is usually placed in the lowest part of the basement so when the water comes in, it will flow across the floor to the sump pit, so the sump pump can then pump it out. The sump pump provides an automatic way to get the water out of the basement as opposed to using a Shop-Vac and having to dump it out manually. The sump pump should be one part of a complete waterproofing system. A sump pump alone is not effective to lower the water table under the house and prevent water infiltration.



Having a sump pump without a delivery system (such as a complete waterproofing system) can be likened to having a heart without arteries and veins; it's just not going to work right. So, in conclusion, if you have 1

spot that gets water and absolutely nowhere else and you don't want to vacuum it up then get a sump pump. The rest of us need a French Drain.

Chapter Eleven

How Much Does a French Drain Cost?

Let's just jump in now and talk price. Let's get right to the bottom line. I'm all for getting down to it, but we just have to first make sure that we are talking about the same thing here. Apples and apples as it were.

As we discussed earlier, there are different types of French Drains. Just as there are different contractors, there are different ways to do the same job. A VW Jetta and a Mercedes S550 are both German cars and both will get you to work on time, but there is quite a difference between the two.

Installed underneath the basement floor on the inside perimeter of the basement and while commonly referred to as a French Drain is what we call a Turbo Jet Pro Pressure Relief System. This is because we dig a deep channel, it relieves the hydrostatic pressure (water pressure) from the footing area, and the drain is bonded to the house with Poly- drain wallboard. Here is how Pure Service Pro does a French Drain (Turbo Jet Pro Pressure Relief System):

- First we do prep work; we move your personal items and cover it with plastic and lay tarps across the floor.

    a. The inside perimeter of the floor is cut approximately one foot from the wall. A trench is excavated and pitched.

    b. Where possible, the lowest course of block is tapped and bled (weep holes) in order to drain the walls.

    c. Fully slotted, non-biodegradable, polyethylene drainage pipe to deliver the water to the sump is installed.

    d. To discharge the water, we will install a 4,000 GPH submersible pump* in a covered polyethylene liner.

    e. Polydrain wallboard is installed over the bottom of the wall and over the entire trench in the basement.

    f. The wallboard and drainage pipe are covered with gravel.

    g. The basement floor is re-cemented to its original level.

    *Note: Basement perimeter of $\leq$ 124' = 1 sump pump; 125'-249'= 2 sump pumps.

- Finally we do the clean-up work; we remove the plastic and sweep the floor broom clean while removing all debris from your property.

The Turbo Jet Pro Pressure Relief System (French Drains) is usually installed in 1 day by Pure Service Pro's experienced staff. The system is maintenance free once installed.

Chapter Twelve

Choosing a Basement Waterproofing Contractor

Choosing the right basement waterproofing contractor is crucial to ensuring the safety and longevity of your home. With so many options available, it can be challenging to know which company to trust. At **Pure Service Pro**, we believe in transparency, professionalism, and delivering solutions that fit your unique needs. Here's what you should expect when selecting a contractor—and what to watch out for.

Initial Contact

The first interaction with a contractor can tell you a lot about their approach. Some contractors might insist that both homeowners be present for the inspection. While it's ideal to have both parties available to ask questions and discuss the work, it shouldn't be a requirement. If a contractor pushes for this, they may be setting you up for a high-pressure sales pitch. At **Pure Service Pro**, we offer flexible scheduling and are happy to discuss the project with all decision-makers, but we never pressure you into making a decision.

Inspection and Presentation

When the contractor arrives for the inspection, they should focus on thoroughly assessing your basement and addressing your specific concerns. The goal should be to find the root cause of any water issues and offer a tailored solution. Be cautious of companies that provide a "one-size-fits-all" recommendation—every home and situation is different.

At **Pure Service Pro**, we offer a variety of solutions, including:

- **Interior French drains**
- **Sump pumps**
- **Waterproofing systems**
- **Crawlspace encapsulation**
- **Mold remediation**
- **Foundation repair**

We proudly offer our industry-leading **Turbo Jet Pro Pressure Relief System** and **Pure Wifi Sump Pump Combos With FREE Mobile Phone Monitoring**. Our sump pumps include advanced monitoring and remote alerts via Wi-Fi to give you real-time updates on your system's performance. With this technology, you can rest assured knowing your basement is protected even when you're not home.

Our goal is to provide the most effective long-term solution, not just a quick fix. Each system we install is designed with your home's specific needs in mind, ensuring lasting protection against water damage.

Best in Industry Warranties

At **Pure Service Pro**, we believe in standing behind the quality of our work. That's why we offer the **industry's best French drain warranty** with a **lifetime-of-the-home guarantee**, including **unlimited homeowner transfers**. This means that even if you sell your home, the new owners will continue to benefit from the protection of our system.

In addition, our sump pumps come with a **bumper-to-bumper product and labor warranty**, ensuring that all components are covered. This warranty reflects our commitment to providing you with the highest level of service and peace of mind. With **Pure Service Pro**, you won't just get a solution—you'll get one that's built to last and backed by exceptional support.

Reputation and Research

Before making your decision, do your research. Check the contractor's reputation with the **Better Business Bureau (BBB)**, online reviews, and ask for references from previous clients. The BBB provides ratings from "A+" (the best) to "F," so this can be a good starting point in evaluating a company's reliability. A reputable contractor will also be licensed and insured, and should offer to show you documentation without hesitation.

At **Pure Service Pro**, we are proud of our **A+ rating** with the BBB and are fully licensed and insured. We encourage potential clients to review our customer testimonials and take the time to learn more about us before making any decisions. We believe that a well-informed customer is a happy customer, and we are here to guide you every step of the way.